

## CTOC TTM Local Operating Procedures (LOP)\_v2

*This document outlines the Christchurch Traffic Operations Centre (CTOC)'s view on Temporary Traffic Management (TTM) applications within the Christchurch city urban boundaries. The NZTA Code of Practice for Temporary Traffic Management (COPTTM) is the primary reference standard, and this LOP document explains variations that CCC and NZTA consider to be acceptable for our city during the rebuild period. Roads within the city are classified as Level LV, 1 or 2. Relevant sections of COPTTM and other documents are referenced.*

*The LOP are intended to be applied to both to CCC roads and NZTA State Highways to become the 'new normal' approach. Justification will be required if STMSs wish to apply the traditional COPTTM approach.*

*The LOP aims to clarify RCA expectations and outline differences to traditional COPTTM practice. Details not mentioned, are expected to follow standard COPTTM practice. Please aggregate LOPs together into each TMP to achieve maximum benefit and consistency throughout Christchurch.*

*Where differences to CCC's Construction Standards Specification (CSS) exist, this document takes precedence.*

*Note that TTM activities on roads outside of the Christchurch city urban boundaries must meet normal COPTTM or RCA requirements. Christchurch city urban boundaries can be found at:*

*<http://www.ccc.govt.nz/thecouncil/policiesreportsstrategies/policies/groups/streetsroads/speedlimits/speedlimitregister/index.aspx>*

### **TMPforChch**

All TMPs must be submitted through the [www.tmpforchch.co.nz](http://www.tmpforchch.co.nz) website.

### **Real Time Operations (RTO) Contact**

#### **Ref E1.8.3**

All work within 50m of a signalised intersection must be notified to CTOC's RTO team. This includes sign deployments, and detouring significant volumes of traffic through signalised intersections. RTO contact details are: 03 941 8620 or [signals@ccc.govt.nz](mailto:signals@ccc.govt.nz)

- RTO must be notified 24 to 48 hours before work commences on site (email preferred). They will automatically have received a copy of the TMP from TMPforChch once this is approved – please refer to the TMP number. If specific intersection details and impacts are not already covered in the TMP, then a detailed plan or drawing should be provided to help explain these.
- RTO must be notified at the time of TTM deployment (phone call preferred).
- RTO must be contacted again before any significant changes are made to established TTM, and also 24 to 48 hours before disestablishment from site (phone call preferred).

### **T1 ROAD WORKS Catchment Perimeter Signs**

#### **Ref C3.2.3, B1.4.1**

In 50kph speed limit areas with intense work programmes (multiple worksites in close proximity to one another), an 'Intense worksite catchment' may be declared, and perimeter advance warning signage deployed. Worksites within the defined catchment are not required to deploy T1 ROAD WORKS advance warning signs as part of their TMP.

'Intense worksite catchment' is defined as: *"An area containing multiple, continuous TTM worksites, that will be present in some configuration on site for over 1 month. One worksite will generally be located within 300m of another."*

CTOC will define or endorse a proposed catchment, and the primary programme owner benefitting from the perimeter will deploy and maintain a cordon of T1 (or alternative as agreed) signs. Perimeter signage is required on all Level 2 road approaches, on Level 1 road approaches subject to the character of the

road (eg high volume or strategic), and also on Low Volume road approaches if necessary eg where most approaches are LV roads.

CTOC will maintain maps / schedules, and show these on TMPforChch, so that all contractors can view the current approved perimeter boundaries and adjust their TMPs when working within the area.

Perimeter signage should be permanently mounted where practicable to minimise maintenance demand.

Other normal TTM signage is still required for each worksite within the catchment, and at least one stand-mounted sign of size appropriate to the level of the road must be deployed prior to each closure.

CITTM 1.1 **Omission of TG2 WORKS END signs** **Ref C3.2.2 (diagram), C3.2.5**

TG2 WORKS END signs may be omitted on all worksites. This includes the TG2, TG31 THANK YOU combination.

The 'End of Works' zone is redefined as: *"The last sign or TTM device used"*. Where a Temporary Speed Limit (TSL) has been deployed, the 'End of Works' zone will usually be defined by the Permanent Speed Limit reinstatement signs. Where a TSL has not been deployed, it will usually be defined by the last TTM device (eg cone) used in the Direction and Protection zone around the closure, or the T1 sign for the opposing approach.

CITTM 1.2 **Side Road Signage** **Ref Section F Layout Diagrams, C3.2.2 (diagram), C3.2.3**

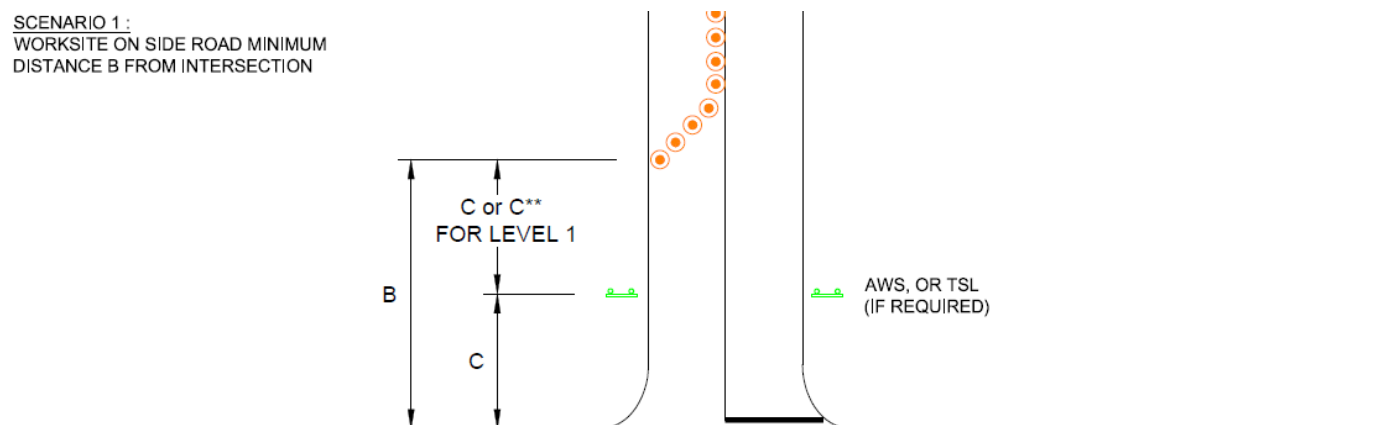
In Scenarios 1, 3 & 4 below, T1 ROAD WORKS signs may be omitted from the main road. In Scenario 2 they may be omitted in certain situations.

The 'Advance Warning' zone definition in COPTTM is not considered to need amendment to reflect the omission of T1 signs for side road TMPs.

**Scenario 1: Closure on Side Road a Minimum Distance of B from Intersection** **Ref F2:19**

- T1 ROAD WORKS signs to be omitted from the main road.
- For Level 1 roads, refer to Diagram F2:19 for C\*\* Table. A minimum Warning Distance B of 50m should be provided wherever possible, and especially if cornering speeds are above 30kph.
- For Level 2 roads, use C as per Level 2 Layout Distances Table.
- At least one stand-mounted sign of size appropriate to the level of the road must be provided prior to the closure. For example, this could be a suitable Advance Warning Sign (AWS) or TSL signs (if TSL required).

SCENARIO 1:  
WORKSITE ON SIDE ROAD MINIMUM  
DISTANCE B FROM INTERSECTION



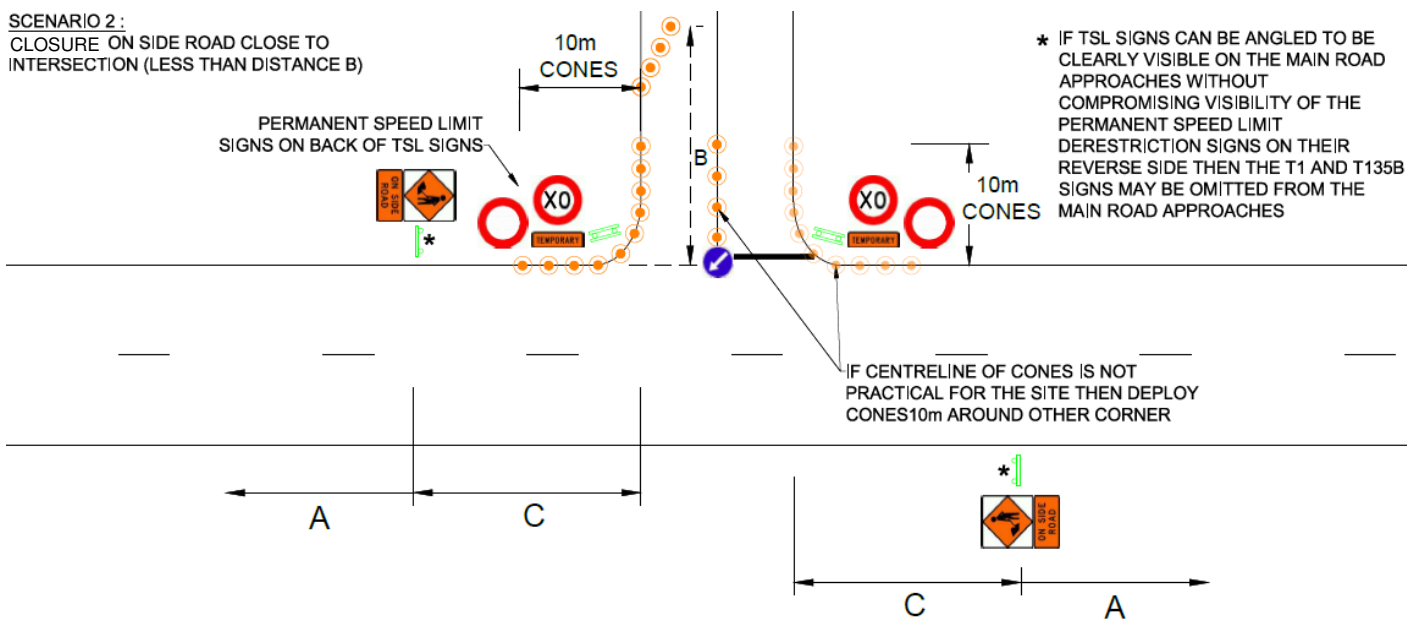
**Scenario 2: Closure on Side Road close to Intersection (less than Distance B)**

**Ref F2:20**

- (i) When most vehicles (85%ile) travel around the corner at speeds less than 30kph, and
- (ii) Sign Visibility Distance A is available to the sideroad intersection, and
- (iii) When there is low risk of queuing on the sideroad, then the following layout may be used instead of diagram F2:20:

- T1 ROAD WORKS and T135B ON SIDE ROAD signs deployed on main road approaches.
- Gated TSL signs deployed at the sideroad intersection, with the Permanent Speed Limit derestriction signs on their reverse side.
- Cones deployed for 10m lengths along the main road LHS shoulder, and down the sideroad shoulder and centreline (or RHS shoulder) to provide side-friction / threshold treatment for turning vehicles.
- A cone-mounted RD6L/R KEEP LEFT arrow deployed on the first cone on the sideroad centreline.

T1 and T135B signs may be omitted from the main road approaches if TSL signs can be angled to be clearly visible on the main road approaches, without compromising visibility of the Permanent Speed Limit derestriction signs on their reverse side.



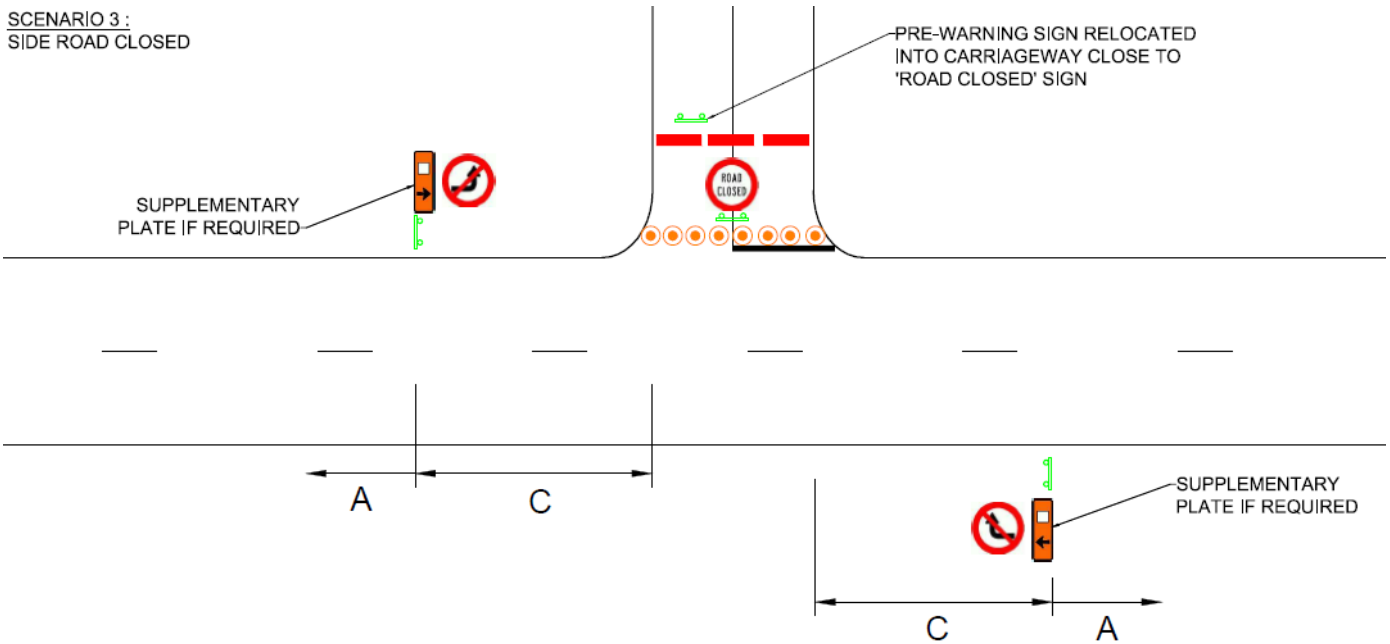
Where significant hazards exist on the sideroad close to the main road intersection, then STMSs must enhance or extend warning signage on the main road approaches to provide sufficient warning. This may require deploying the normal F2:20 layout.

**Scenario 3: Side Road Closed**

**Ref F2:25**

- T1 ROAD WORKS signs to be omitted from the main road.
- RD1R/L NO RIGHT/LEFT TURN, with supplementary TDA6 FOLLOW ↑ (if appropriate).
- RD3 ROAD CLOSED at intersection.

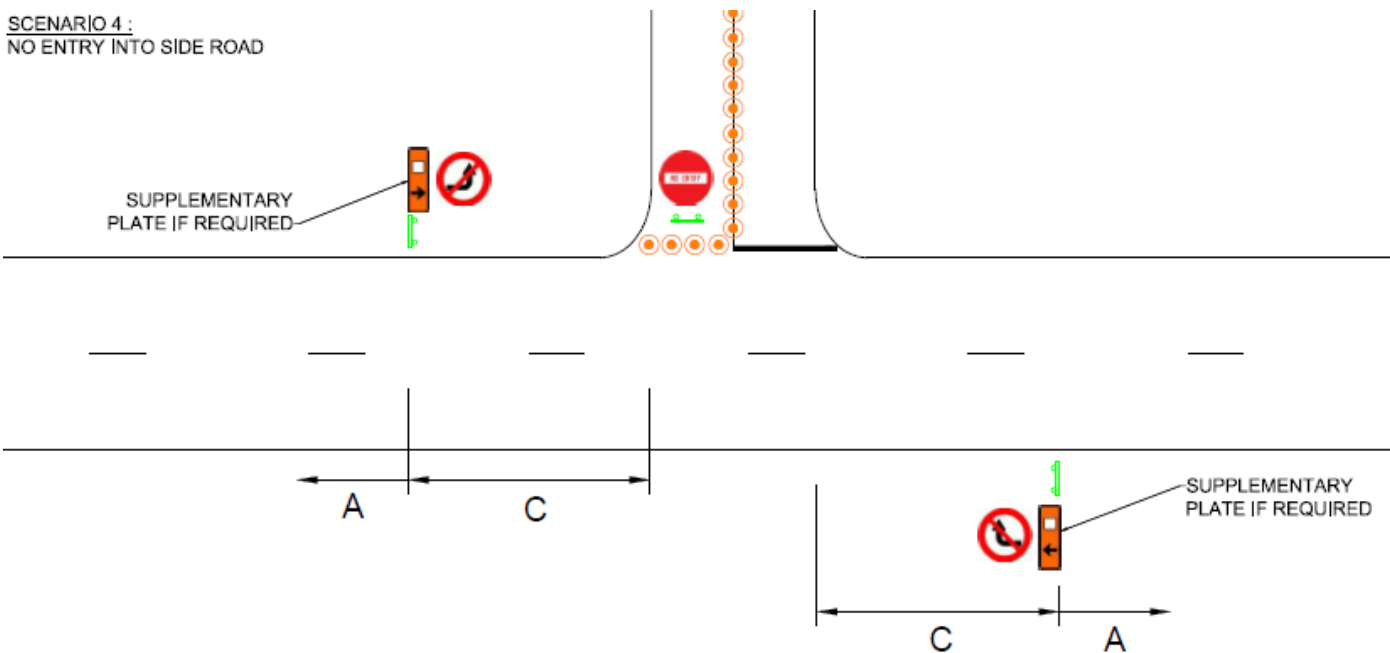
**SCENARIO 3 :  
SIDE ROAD CLOSED**



**Scenario 4: Side Road is Exit Only (Entry closed)**

- T1 ROAD WORKS signs to be omitted from the main road.
- RD1R/L NO RIGHT/LEFT TURN, with supplementary TDA6 FOLLOW ↑ (if appropriate).
- RD2 NO ENTRY at Intersection.

**SCENARIO 4 :  
NO ENTRY INTO SIDE ROAD**



**CITTM 2 Temporary Speed Limits**

**Ref C4, E2 App B**

Temporary Speed Limits (TSLs) must be appropriate to provide an acceptable level of safety at the site, but to not unduly delay traffic. They should not be used in every situation, only where TSLs can be justified and where road users can understand the need to slow down.

Clause 5.2(2)(b) of the Land Transport Rule: Setting of Speed Limits 2003 requires TSLs to be “at least 20kph less than the Permanent Speed Limit” (PSL) in roadwork situations. This prevents use of 40kph TSLs on 50kph PSL roads. Until this constraint can be removed, please use the following guidance:

On 50kph PSL roads, if the site can be safely traversed at 35kph or more with only minor alteration to normal driving behaviour, then 30kph TSLs should NOT be used. This will normally require the following conditions to be met:

- Deficiencies are no more than minor.
- Good visibility is available (greater than Warning Distance B (50m minimum for Level 1, and 75m minimum for Level 2 roads)).
- Road users are able to see hazards or understand them through TTM devices / signage on approach to the site, so that they naturally slow down to a suitable speed.
- The type of work presents low-severity accident risk to workers and road users.

If conditions at the site necessitate traffic speeds of 35kph or less for safety reasons, then a posted TSL of 30kph or less should be deployed. This may be necessary where:

- Major deficiencies exist (tight geometrics, narrow lanes, rough / unsealed surface etc).
- Visibility is restricted below Warning Distance B (50m minimum for Level 1, and 75m minimum for Level 2 roads).
- Road users cannot clearly see hazards or understand them when approaching at the PSL.
- The type of work presents high-severity accident risk to workers and road users, for example repeated work on foot close to a live traffic lane.

Refer to the TSL decision matrix in COPTTM E2 Appendix B for further guidance in determining appropriate speed limits. If a TSL is adopted, then supporting TTM techniques should be included in the TMP to validate it to approaching road users. Techniques include side friction, threshold treatments, chicanes, barricades, speed feedback signs etc.

### CITTM 1.3 **Signage Gating**

#### **Ref C3.3.1**

Gating is not required on two-lane two-way, and any other 'single approach lane per direction' roads, except for speed limit signs that must still be gated.

(Gating is required as per normal on roads with multi-lane approaches, unless specified otherwise in these LOP).

### CITTM 1.4 **Cone Mounted KEEP LEFT / RIGHT signs**

#### **Ref B1.4.2**

To assist in guiding traffic around the closure, 400mm diameter RD6L/R KEEP LEFT/RIGHT (single) arrows may be mounted onto cones in low risk situations.

Cone-mounted RD6L/R signs are not intended for use at the start and end of lane closure tapers and chicanes. These (high risk) situations must be signed as per normal.

### **Traffic Delays**

#### **Ref C16, Guideline for TTM Efficiency, SWIF Flowchart**

Traffic impact must be considered during development of each TMP, and a suitable balance of safety, construction efficiency and network impact be proposed by the TTM methodology. The TMP Designer must identify if traffic volumes are likely to exceed the available capacity at the site, and along detour routes.

COPTTM C16 and the Guideline for TTM Efficiency provide tools for TMP Designers to use. More detailed Network Modeling and Area-Wide Works Coordination may be necessary to provide assurance of the expected capacity.

TMPs must summarise the assessment undertaken, identify when network efficiency impact is likely to occur, and outline appropriate mitigation measures to minimize impact.

### **Mitigation Measures when Network Impact Unavoidable** **Ref Mitigation Measures Flowchart**

When Network Impacts are unavoidable, mitigation measures must be considered, planned and delivered alongside the TMP. Specific details of Communication and Notification Strategies do not need to be included in the TMP, but the TMP must at least outline the measures being planned.

## **Barrier Systems**

### **Ref B12 & C18, SHGDM Section 7.3**

Where barrier systems are proposed as a safety device for closure protection, the following elements must be clearly explained in the TMP:

- Test Level in terms of NCHRP 350 or AASHTO MASH. The proposed product must be included in NZTA's authorised product list.
- Layout details:
  - Upstream End Treatment
  - Flare sections
  - Protection Zone (Length of Need)
  - Downstream End Treatment (if required)
  - Offset to live lanes
  - Delineation\*
  - Transition details (if required)
  - Deflection Distance (Clear Zone)

A close-up scale drawing and cross-sections are recommended to fully explain the proposed barrier system configuration.

- How key elements will be installed so that performance will replicate crash-tested performance\*\*. Any differences to the crash-tested configuration may result in the system performing poorly and being non-compliant with NZTA M23: 2009. Components must be installed in accordance with manufacturer instructions wherever practicable.
- Maintenance standards proposed for the barrier system. Note that water-filled systems may require higher levels of attention than other types.

\* The minimum Delineation for barriers used to channel traffic at speeds less than 65kph is reflective markers (chevrons) at 10m spacing. Additional delineation is necessary for any worksites with a speed limit higher than 65kph, or where significant risks exist.

\*\* Where the crash-tested configuration (especially deflection distances) cannot be provided, the TMP must explain why the configuration is proposed, the expected performance, and any mitigation measures to be adopted to manage risks.

## **Peak Traffic Hours**

"Peak Hours" are defined as:

07:00 – 09:00 Monday to Friday

16:00 – 18:00 Monday to Thursday

15:30 – 18:00 Friday

Any day prior to a public holiday assumes Friday timing.

## **Work during Peak Hours**

### **Ref A3 & C16**

| <b>Road Level</b> | <b>TTM Operations</b> | <b>Construction Work within established TTM worksite</b>   |
|-------------------|-----------------------|--|
| 2                 | Not permitted         | Permitted, provided that capacity is not reduced below what is accepted in the TMP. Disruptive vehicle maneuvering for site accessing, and operations that significantly distract passing traffic are not permitted. |
| 1                 | Permitted*            | Permitted*   |
| LV                | Permitted*            | Permitted*   |

\* Provided that traffic delays do not exceed 5 minutes, or as accepted in the TMP.

## **Site Accessing**

### **Ref C15 & A3**

Site accessing methodologies must be planned for each TMP. Specific access points should be detailed into TMPs wherever possible, to confirm that both the work and the necessary site accessing methodologies are viable without compromising safety and traffic flow.

Where site accessing cannot be accomplished in the normal direction of traffic (eg reversing into site, using oncoming lanes etc), then a safe methodology must be designed, explained clearly in the submitted TMP, and resources allowed for in site operations.